

CLAIMS

What is claimed is:

1. A shipping container tracking system, comprising:
 - 5 at least one shipping container sensor adapted to be attached to a first shipping container to sense at least one of a condition of said first shipping container and a condition of at least one item within said first shipping container; and
 - a shipping container communication adapter to adaptively
10 communicate with a second shipping container.
2. The shipping container tracking system according to claim 1, further comprising:
 - at least one of a satellite communication adapter and a radio
15 adapter.
3. The shipping container tracking system according to claim 1, wherein:
 - said shipping container communication adapter connects
20 said first shipping container to an Ad-Hoc network.
4. The shipping container tracking system according to claim 3, wherein:
 - said Ad-Hoc network is at least one of a Bluetooth piconet
25 network, an Ultra-Wide-Band wireless network and a Wi-Fi network.
5. The shipping container tracking system according to claim 3, wherein:
 - said Ad-Hoc network is a hard-wired network.
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6. The shipping container tracking system according to claim 3, wherein:

said Ad-Hoc network is a wireless network.

5 7. The shipping container tracking system according to claim 1, wherein:

said radio adapter communicates with a cell phone communications network.

10 8. The shipping container tracking system according to claim 1, further comprising:

a central database to receive said at least one shipping container sensor data.

15 9. The shipping container tracking system according to claim 1, wherein:

said central database verifies a content of said first shipping container by processing said condition of said first shipping container against a shipping manifest database.

20 10. The shipping container tracking system according to claim 1, further comprising:

a line of intermediary communications buoys placed at sea at appropriate locations to test said container tracking system functionality
25 and/or to detect anomalies at a safe distance from port facilities.

11. A method of distributing data obtained from sensors adaptively attached to a shipping container, comprising:

establishing a network connection between a first shipping container and a second shipping container; and

5 transmitting sensor data from said first shipping container to said second shipping container if said sensor attached to said first shipping container detects a hazard and said first shipping container is unable to transmit its sensor data to at least one of an off ship transmission path and a shipboard system.

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12. The method of distributing data obtained from sensors adaptively attached to a shipping container according to claim 11, further comprising:

15 detecting changes in radio frequencies signal multi-path to detect additions and remove of at least one shipping container from a ship.

13. The method of distributing data obtained from sensors adaptively attached to a shipping container according to claim 11, further comprising:

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transmitting said sensor data from said second shipping container to at least one of a satellite data path, a radio data path, and said shipboard system.

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14. The method of distributing data obtained from sensors adaptively attached to a shipping container according to claim 11, wherein:

said step of establishing a network connection establishes an Ad-Hoc network.

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15. The method of distributing data obtained from sensors adaptively attached to a shipping container according to claim 11, wherein:

5 said step of establishing a network connection establishes a hard-wired Ad-Hoc network.

16. The method of distributing data obtained from sensors adaptively attached to a shipping container according to claim 11, wherein:

10 said step of establishing a network connection establishes a wireless Ad-Hoc network.

17. The method of distributing data obtained from sensors adaptively attached to a shipping container according to claim 14, wherein:

15 said step of establishing an Ad-Hoc network connection establishes a Bluetooth piconet network.

18. The method of distributing data obtained from sensors adaptively attached to a shipping container according to claim 11, wherein:

20 said step of transmitting said sensor data from said second shipping container transmits to a cell phone communications network.

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19. The method of distributing data obtained from sensors adaptively attached to a shipping container according to claim 11, further comprising:

5 testing/detecting a container tracking system functionality and/or anomalies at a safe distance from port facilities by a line of intermediary communications buoys placed at sea at appropriate locations to.

20. Apparatus for distributing data obtained from sensors adaptively attached to a shipping container, comprising:

 means for establishing a network connection between a first shipping container and a second shipping container; and

 means for transmitting sensor data from said first shipping container to said second shipping container.

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21. The apparatus of distributing data obtained from sensors adaptively attached to a shipping container according to claim 20, further comprising:

20 means for detecting changes in radio frequencies signal multi-path to detect additions and remove of at least one shipping container from a ship.

22. The apparatus of distributing data obtained from sensors adaptively attached to a shipping container according to claim 20, further comprising:

25 means for transmitting said sensor data from said second shipping container to at least one of a satellite data path, a radio data path, and said shipboard system.

23. The apparatus of distributing data obtained from sensors adaptively attached to a shipping container according to claim 20, wherein:

5 said means for establishing a network is adapted to establish an Ad-Hoc network.

24. The apparatus of distributing data obtained from sensors adaptively attached to a shipping container according to claim 20, wherein:

10 said means for establishing a network connection is adapted to establish a hard-wired Ad-Hoc network.

25. The apparatus of distributing data obtained from sensors adaptively attached to a shipping container according to claim 20, wherein:

15 said means for establishing a network connection is adapted to establish a wireless Ad-Hoc network.

26. The apparatus of distributing data obtained from sensors adaptively attached to a shipping container according to claim 23, wherein:

20 said means for establishing an Ad-Hoc network connection is adapted to establish a Bluetooth piconet network.

25 27. The apparatus of distributing data obtained from sensors adaptively attached to a shipping container according to claim 20, wherein:

30 said means for transmitting said sensor data from said second shipping container is adapted to transmit to a cell phone communications network.

28. A shipping container tracking system, comprising:
at least one shipping container sensor adapted to be
attached to a first shipping container to sense at least one of a condition
of said first shipping container and a condition of at least one item within
5 said first shipping container;
a shipping container communication adapter to adaptively
communicate with a second shipping container; and
at least one of a satellite communication adapter and a radio
adapter;
10 wherein said shipping container tracking system transmits
sensor data using one of said satellite communication adapter and said
radio adapter, and if said transmission of said sensor data fails using one
of said satellite communication adapter and said radio adapter, said
shipping container tracking system transmits sensor data using the other
15 of said satellite communication adapter and said radio adapter.

29. The shipping container tracking system according to
claim 28, wherein:
said radio adapter is adapted to transmit to a cell phone
20 communications network.

30. The shipping container tracking system according to
claim 28, wherein:
said shipping container communication adapter is at least
25 one of a a Bluetooth communication adapter, a Wi-Fi communications
adapter, and a Ultra-Wide-Band communications adapter.

31. The shipping container tracking system according to
claim 28, wherein:
30 said satellite communication adapter and said radio adapter
are attached to a ship's bridge.

32. A shipping container for use in a shipping container tracking system, comprising:

a shipping container housing; and

5 at least one of a satellite transmitter on a top of said shipping container housing, a radio transmitter on a side of said shipping container housing, and a Global Positioning System (GPS) satellite receiver on said top of said shipping container housing.

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